REMARKS

Claims 16-30 are pending in the present application. Claims 16-19 have been amended, and claims 20-30 were previously withdrawn by restriction. Support for the amendment to claim 16 can be found in paragraph [0015] of the application. (Citation is to the US publication, US 2007/0059859). The amendments to claims 17-19 are more editorial than substantive in nature, thus the content and scope of these claims is unchanged. Accordingly, Applicants submit that no new matter has been added to the application. Reexamination of the application and reconsideration of the rejections and objections are respectfully requested in view of the above amendments and the following remarks, which follow the order set forth in the Office Action.

Claim Objections

Claims 18 and 19 were objected to because the language limiting the silicon nanostructure was allegedly awkward and unconventional. Applicants respectfully traverse. Nonetheless, Applicants amended claims 18 and 19 to conform the language thereof to more common English usage. The scope and content of claims 18 and 19 has not been changed, thus Applicants submit that no new matter has been added to the application. Applicants respectfully request reconsideration and withdrawal of the instant objection.

Rejections under 35 USC § 103

I. Tom and Tam

Claims 16 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tom et al., US 5,704,967 ("Tom") in view of Tam, US 5,604,162 ("Tam"). Applicants respectfully traverse.

Amended claim 16 recites a hydrogen reservoir comprising a substance suitable for storing hydrogen, said substance is constituted by nano-structured silicon, wherein said nano-structured silicon is a nano-structure presenting a high specific surface area that is greater than 100 m^2/cm^3, wherein the nano-structure contains nano-crystallites or nano-particles of silicon of various geometric shapes that may be interconnected or not between themselves, of which at least one dimension is less than or equal to 100 nm and of which the sum of the surface areas of each nano-crystallite and/or nano-particle is greater than the plane surface occupied by the nano-structure.

Tom does not disclose or reasonably suggest every limitation of amended claim 16. Tom discloses a fluid source system comprising a leak-tight vessel, containing a fluid to be dispensed that is absorbed into a sorbent material comprising a physical absorbent material. *See*, c. 11, ll. 49-51. Tom primarily discusses using the fluid source system with arsine gas. Tom also discloses a list of other fluids that may be dispensed from the system, including silane, diborane, arsine, phosphine, phosgene, chlorine, BCl_3, BF_3, B_2D_6, tungsten hexafluoride, hydrogen fluoride, hydrogen chloride, hydrogen iodide, hydrogen bromide, germane, ammonia, stibine, hydrogen sulfide, hydrogen cyanide, hydrogen selenide, hydrogen telluride, deuterated hydrides, halide (chlorine, bromine, iodine, and fluorine) gaseous compounds such as NF_3, ClF_3, GeF_4, SiF_4, organo compounds, and organometallic Group V compounds such as $(CH_3)_3Sb$. *See*, c. 11, ll. 53-67. However, Tom does not disclose storing hydrogen in the fluid source system thereof, as recited in claim 16. Rather, Tom discloses many compounds comprising hydrogen bonded to another element, e.g., silane (SiH_4), diborane (B_2H_6), arsine (AsH_3), etc. but never hydrogen alone. As such, one of ordinary skill in the art would have no reason to contemplate that the system of Tom could be used to store hydrogen alone, as recited in claim 16.

Further, Tom discloses that thermal desorption of the fluid from the sorbent material may be used to desorb the fluid stored in the storage system. *See*, c. 8, ll. 18-25. As such, the storage system may be heated to elevate the temperature of the sorbent thus causing desorption of the sorbate fluid. *See*, c. 8, ll. 29-32. One of ordinary skill in the art would know that the combination of heat and hydrogen gas creates an explosion hazard. *See*, c. 1, ll. 52-54. Accordingly, one of ordinary skill in the art would have no reason to use the system of Tom for storing hydrogen, as recited in claim 16. Further, Tom does not disclose or reasonably suggest a nano-structure presenting a high specific surface area that is greater than 100 m^2/cm^3, wherein the nano-structure contains nano-crystallites or nano-particles of silicon of various geometric shapes that may be interconnected or not between themselves, of which at least one dimension is less than or equal to 100 nm and of which the sum of the surface areas of each nano-crystallite and/or nano-particle is greater than the plane surface occupied by the nano-structure. Additionally, given the specificity of the parameters, it is unlikely that one of ordinary skill in the art would arrive at such parameters absent undue experimentation and/or hindsight reasoning.

Tam discloses a process for preparing tritiated porous silicon. *See*, Abstract. Tritium is a radioactive isotope of hydrogen, thus the disclosure of tritium does not amount to a

disclosure of or a reasonable suggestion of hydrogen. Additionally, Tam discloses that it is desirable to contain and prevent escape of tritium from the tritiated porous silicon. *See*, c. 1, ll. 45-67. In contrast, hydrogen that is stored in the claimed hydrogen reservoir is to be extracted from the hydrogen reservoir to supply energy (e.g., for a fuel cell). As such, one of ordinary skill in the art would have no reason to follow the teaching of Tam when creating a hydrogen reservoir, such as that recited in claim 16, because Tam teaches a device for containing tritium rather than releasing tritium for use. Further, Tam does not disclose or reasonably suggest a nano-structure presenting a high specific surface area that is greater than 100 m^2/cm^3, wherein the nano-structure contains nano-crystallites or nano-particles of silicon of various geometric shapes that may be interconnected or not between themselves, of which at least one dimension is less than or equal to 100 nm and of which the sum of the surface areas of each nano-crystallite and/or nano-particle is greater than the plane surface occupied by the nano-structure, as recited in claim 16. As indicated above, given the specificity of the required parameters, it is unlikely that one of ordinary skill in the art would arrive at such parameters absent undue experimentation or hindsight reasoning.

Based on the foregoing, Applicants submit that claims 16 and 17 are not rendered obvious by Tom in combination with Tam. Accordingly, Applicants respectfully request reconsideration and withdrawal of the instant rejection.

II. Tom, Tam, and Nowobilski

Claims 18 and 19 are rejected under 35 U.S.C. 1 03(a) as being unpatentable over Tom and Tam, and further in view of Nowobilski et al.,US 4,749,384 ("Nowobilski"). Applicants respectfully traverse.

Nowobilski discloses an apparatus and a method for quick-filling a full charge of natural gas into an adsorbent filled cylinder for use in compressed natural gas powered vehicles in a time period that is commercially acceptable. *See*, c. 3, ll. 18-22. Nowobilski fails to remedy the deficiencies of the combination of Tom and Tam, which are discussed above, because Nowobilski does not disclose or suggest storing hydrogen or a nano-structure meeting the limitations set forth in amended claim 16. As such, claims 18 and 19, which depend from claim 16, are not obvious in view of the combination of Tom, Tam, and Nowobilski. Accordingly, Applicants respectfully request reconsideration and withdrawal of the instant rejection.

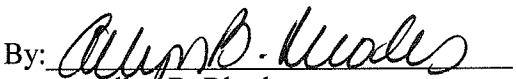
For the foregoing reasons, claims 16-19 are considered allowable. A Notice to this effect is respectfully requested. If any questions remain, the Examiner is invited to contact the undersigned at the number given below.

The Director is hereby authorized to charge any appropriate fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

BRINKS HOFER GILSON & LIONE

Date: February 11, 2010

By: 
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